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FOREWORD

In 1958 the Mineralogical Societies of Great Britain and America agreed to co-operate in extending the scope and coverage of *Mineralogical Abstracts* by producing the *Abstracts* as a separate journal under their joint auspices. This separate publication commenced as volume 14 in 1959, and that and the three subsequent volumes were edited by Dr. J. Phemister. During this period *Mineralogical Abstracts* continued to expand and grew from a total of 4,179 abstracts and book notices in volume 14 to 6,288 abstracts and book notices in volume 17, 1965-66.

After Dr. Phemister gave notice of his retirement, the Committee of Management (appointed by the sponsoring societies) decided on a major change in the editorial arrangements and approved the recruitment of a team of sub-editors to work under the new editor in order to distribute the ever increasing work. This policy has been put into effect by the appointment of eight sub-editors whose names appear on the inside front cover. In addition to editorial work, Dr. Bradley continues with the arduous task of supervising the preparation of the indexes.

The incoming editor takes this opportunity to acknowledge the very great encouragement and advice afforded him over the past years by Dr. Phemister. It gives him considerable pleasure that in this new volume Dr. Phemister's name appears not only as a sub-editor but also as a contributing abstractor.

The Committee of Management wishes to express its thanks to the International Mineralogical Association and to the Councils of the Mineralogical and Geological societies of many countries for their co-operation towards the provision of abstracts. It is proper also to thank the National Organizers and the individual abstractors for their assistance in making *Mineralogical Abstracts* international in scope: their work is done entirely without fee—the production of the *Abstracts* at a price allowing it to be found on the shelves of individual mineralogists is their reward.

The eighteenth volume of *Mineralogical Abstracts* contains 3,044 abstracts (including book notices). The abstracts are grouped in the sixteen main sections shown on page iii: the larger sections have been sub-divided as seems appropriate.

Place-names are, in general, in the form used in the Columbia-Lippincott Gazetteer of the World (1952); alternative forms are given occasionally.

The Subject Index was compiled by O. Bradley and E. M. Sheffield; the Author Index by J. Macqueen.

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Grateful thanks are due to those readers who have notified us of errors in volume 18 and earlier volumes of *Mineralogical Abstracts*.

ORGANIZATION OF ABSTRACTS

Arising from a decision taken at the meeting of the INTERNATIONAL MINERALOGICAL ASSOCIATION in Copenhagen in 1900 the Mineralogical Societies of America and Great Britain agreed to issue a joint statement to National Societies adhering to the Association inviting each Society to organize contributions of abstracts of papers published in the journals of its country on subjects relevant to *Mineralogical Abstracts*. This invitation was issued and has brought a gratifying response. Members of Societies which have agreed to co-operate in this way are entitled to receive *Mineralogical Abstracts* for their personal use at a reduced rate of subscription in application which must be made through their National Society. The countries now co-operating include: AUSTRALIA, AUSTRIA, BELGIUM, BULGARIA, CANADA, CZECHOSLOVAKIA, DENMARK, EGYPT, FINLAND, GERMANY, INDIA, ISRAEL, ITALY, JAPAN, NETHERLANDS, NEW ZEALAND, NORWAY, PAKISTAN, PORTUGAL, SPAIN, SWEDEN, SWITZERLAND. Individual mineralogists and petrologists in countries not represented in the Association, or not yet co-operating through their National Society, provide abstracts from the literature of ARGENTINA, BRAZIL, KENYA, MEXICO, and SOUTH AFRICA.

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ERRATA AND ADDENDA

(L, R indicate left, right column ;

* indicates counted from bottom.)

		<i>Mineralogical Abstracts</i> , vol. 13				<i>Mineralogical Abstracts</i> , vol. 18 (contd.)	
	LINE			PAGE	LINE		
8	5*	for with 12AlBO_3 read but with $2[\text{Al}_6\text{B}_5\text{O}_{15}(\text{OH})_3]$		83R	35	for Volkonskoite read Volkonskoite	
		<i>Mineralogical Abstracts</i> , vol. 16		117R	10	for POLOVINKINA, J. IR. read POLOVINKINA, YU. I.	
4L	7*	after BENTOR (Y. K.) add GROSS (S.) & HELLER (L.)		126R	14*	for minerals studies read mineral studies	
		<i>Mineralogical Abstracts</i> , vol. 17		152L	14*	for PLASKIN read PLAKSIN	
6L	15	for CaSiO_4 read Ca_2SiO_4		180R	29, 30, 31	for whereas in the case of the lighter lanthanides in the alkaline olivine basalts there is no definite enrichment. read in the case of the alkaline olivine basalt, however, this ratio increases from Sm to La to a maximum of about 250.	
3R	15*	for porisite read parisite		187R	14	for Sam's Valley read Sams Valley	
3R	35	after PREISINGER (A.), Structure of stishovite, 599 add — v. MARKART (H.), 611		—	34*	for Monte des Fortes read Monte das Fortes	
		<i>Mineralogical Abstracts</i> , vol. 18		189L	15	for Lafayette read La Fayette	
7L	4*	for GOMEZ, COEDO A. read GOMEZ COEDO, A.		197R	2*	for Mauretania read Mauritania	
1R	4*	for JIMÉNEZ, J. L. read JIMÉNEZ SECO, J. L.		201L	13	for PORNOV read PORTNOV	
5L	5	for grandiorite read granodiorite		204R	5*	for RIBBE, PAUL R. read RIBBE, PAUL H.	
7L	10	for 30 read 20		220R	15*	for ocuntry read country	
7L	28*	for sutunite read autunite		229R	31	for Rishicha read Rashicha	
9R	16	for absorpition read absorption		231R	9*	for Khorzhinskiĭ read KORZHINSKIĖ	
2L	21	for BROEKER read BROECKER		246R	1*	for $\delta^{34}\text{S}$ (to read $\delta^{34}\text{S}$) to	
35L	27	for Wairaki read Wairakei		252L	26*	for 1125 read 1225	
36R	13*	for Burböle read Bjurböle		257R	18	for taafeite read taaffeite	
37R	20	for Novyi Urei read Novo Urei		—	20	for taafeite read taaffeite	
42R	1	for Azor read Azov		—	24	for 18-286 read 18-284	
48R	31	for titanolâvenite read titan-lâvenite		258R	4*	for RYZHENKO, B. I. read RYZHENKO, B. N.	
50L	4*	for microprobe read microprobe		259R	27	for Krykuduk read Krykkuduk	
37L	13	for Micoene read Miocene		—	14*	for LIPOVA, L. M. read LIPOVA, I. M.	
73L	28	for wtih read with		264R	11	for Kerch-Tamin' read Kerch-Taman'	
81R	21	for MARSHALL, D. T. read MARSHALL, D. J.		269L	2*	for the seminerals read these minerals	
				282L	35	after Rossen add , Burgas	
				289L	19*	for Sludyanka read Slyudyanka	
				297R	7	for Winsberg read Weinsberg	

ABBREVIATIONS USED IN REFERENCE TO PUBLICATIONS

Abhdl.	Abhandlungen	Geophys., geofis.	Geophysic-al, -s, &c.	Prosp.	Prospecting
Abstr.	Abstract,-s	Govt.	Government	Publ.	Publication(s), published
Abt.	Abteilung				
Acad., Accad., Akad.	Academy, & <i>equiv.</i>	Hdbh.	Handbuch	Rasv.	Razvedka = survey
Adv.	Advancement			Rec.	Records
Agric.	Agricultur-al, -e	Illustr.	Illustrat-ed, -ions	Ref.	References, referata
Anal.	Analy-st,-tical, &c.	Imp.	Imperial	Rend.	Rendiconti
Ann., An.	Annals, Anales, & <i>equiv.</i>	Industr.	Industr-ial, -y	Repb.	Republic
Anorg.	Anorganisch	Inform.	Information	Rept.	Report(s)
Appl.	Applied	Inst.	Institute, institution, & <i>equiv.</i>	Res.	Research
Arch.	Archives	Instr.	Instruments	Reserv.	Reserves
Assoc., Assoc.	Association, & <i>equiv.</i>	Int.	Interior	Resrcs.	Resources
Astron.	Astronomical	Intern.	International	Rdsch.	Rundschau
		Invest.	Investigations	Rev.	Review
Bd.	Band	Issl.	Issledovaniye = investigation	Roy.	Royal, & <i>equiv.</i>
Beitr.	Beiträge	Ist.	Istituto	Sborn.	Sbornik = magazine
Ber.	Bericht-e	Izd.	Izdanie = publication	Sch.	School, Schule
Berg.	Bergwesen	Izvest.	Izvestiya	Sci.	Science
Bol., Boll., Bull.	Bulletin, & <i>equiv.</i>			Sect.	Section
Bur.	Bureau	Jahresb.	Jahresbericht	Sedim.	Sedimentary
		Jahrb.	Jahrbuch	Ser., sér.	Series, & <i>equiv.</i>
Ceram.	Ceramic, & <i>equiv.</i>	Jorn., Journ.	Journal, & <i>equiv.</i>	Serv.	Service
Chem., Chim.	Chemi-cal,-stry, & <i>equiv.</i>			Sitzb.	Sitzungsbericht
Cien.	Ciencia,-s	Khim.	Khim-ie, &c.	Skr.	Skrift, -en, -er
Circ.	Circular	Kl.	Klasse	Soc.	Society, & <i>equiv.</i>
Cl.	Classe	Krist.	Kristallographie, &c.	Sondbd.	Sonderband
Com.	Comisión			Spec., spez.	Special, & <i>equiv.</i>
Comm.	Commission	Lab.	Laboratory	Stand.	Standard(s)
Conf.	Conference, & <i>equiv.</i>	Lit.	Literary	Stn.	Station
Congr.	Congress, & <i>equiv.</i>			Suppl.	Supplement
Contr.	Contributions	Mag.	Magazine	Surv.	Survey, -or
C.R.	Comptes Rendus	Mat., Math.	Mathematical, & <i>equiv.</i>	Symp.	Symposium
Crist., Cryst.	Crystallograph-ical,-y & <i>equiv.</i>	Medd.	Meddelelser		
		Mem., Mem.	Memoir, -s, & <i>equiv.</i>	Tab(s).	Table(s), tabellen
Dept.	Department, & <i>equiv.</i>	Metall.	Metallurg-ical, -y	Techn.	Technolog-ical, -y
Diss.	Dissertation	Min.	Mineralog-ical, ist, -y	Tids(s)kr.	Tids(s)krift, -en
Divn.	Division	Misc.	Miscellaneous	Tijdschr.	Tijdschrift
Dokl.	Doklady = C.R.	Mitt.	Mitteilungen	Trab.	Trabajos
		Mh.	Monatsheft	Trans.	Transactions
Econ.	Economic	Mus., Muz.	Museum, & <i>equiv.</i>	Transl.	Translat-ed, -ion
Educ.	Education				
Eng.	Engineering	Nac., Nat.	National, & <i>equiv.</i>	U.A.R.	United Arab Republic
Exped.	Expedition	Naz.		Uch.	Uchenyye = learned
Exper.	Experimental	Natur.	Natur-al, -alist, & <i>equiv.</i>	Ucheb.	Uchebnyi = teaching
Expl.	Exploration	Natur-w, -v	Naturwissenschaft, & <i>equiv.</i>	Unders.	Undersögelse, undersökning
				Univ.	University, & <i>equiv.</i>
Fac.	Faculty	Obraz.	Obrazovanie = education		
Fig(s).	Figure(s)	Obsheh.	Obschestva = society	Verhdl.	Verhandlungen
Fis.	Fiscale, fisico			Vidensk.	Videnskaps
Fören.	Föreningen	Petr.	Petrolog-ical, -y, & <i>equiv.</i>	Volc., Vulk.	Volcanolog-ical, -y, &c.
Förh.	Förhandlingar	Petrol.	Petroleum	Vses.	Vsesoyuznyi = All-Union
Fortsch.	Fortschritt,-e	Phil.	Philosophical, &c.	Vyshh.	Vyshhikh = higher
		Photos.	Photographs.		
Gen.	General	Photomicros.	Photomicrographs	Wiss.	Wissenschaft
Geol., géol.	Geolog-y, -ical, -ist, & <i>equiv.</i>	Phys.	Physic-al, -s, & <i>equiv.</i>		
Gesell.	Gesellschaft	Pl(s).	Plate(s)	Zap.	Zapiski = memoirs
Geo-chem., chim.	Geochemi-cal, -stry, &c.	Polytech.	Polytechnic, & <i>equiv.</i>	Zav.	Zavodskaya = factory
Geogr.	Geograph-y, ical, &c.	Pract., Prakt.	Practical, & <i>equiv.</i>	Zaved.	Zavedenie = institution
		Proc.	Proceedings	Zeits.	Zeitschrift
		Prof.	Professional	Zhurn.	Zhurnal = journal
				Ztg.	Zeitung

ABBREVIATIONS AND SYMBOLS

used in text of abstracts

M.M. ... Mineralogical Magazine : M.A. ... Mineralogical Abstracts : A.M. ... American Mineralogist

CHEMICAL & CHEMICAL-PHYSICAL

cation-exchange capacity ..	...	c.e.c.
chemical analysis ...	...	chem. anal.
concentrated ...	...	conc.
differential thermal analysis ...	...	d.t.a.
dilute ...	...	dil.
equivalent U_3O_8$ ...	...	\epsilon\text{U}_3\text{O}_8$
ethylenediaminetetra-acetic acid ...	...	EDTA
heat of formation (absolute temperature subscript) ...	...	ΔH_f
hydrogen ion conc. acidity ...	...	pH
insoluble residue ...	...	insol. res.
isotopes, e.g. ...	...	^{40}Ar , ^{40}K
loss on ignition ...	...	ign. loss
milliequivalent ...	...	me.
microgramme ...	...	μg
million-years ...	...	m.y.
not determined ...	...	n.d.
not found ...	...	nt. fd.
not present ...	...	nil
parts per million ...	...	p.p.m.
rare earths ...	...	<i>TR</i> or <i>RE</i>
strength of solution, normal ...	...	<i>N</i>
— — — molar ...	...	<i>M</i>
substances in ionic state		
anions, e.g. ...	...	\text{Cl^- , SO_4^{2-}
cations, e.g. ...	...	\text{K^+ , Fe^{3+}
thermogravimetric analysis ...	...	t.g.a.
trace ...	...	tr.

CRYSTALLOGRAPHIC & STRUCTURAL

Ångstrom unit (10^{-8} cm) ...	...	Å
crystal axes ...	...	<i>a</i> , <i>b</i> , <i>c</i>
— face indices ...	...	(<i>hkl</i>)
— form indices ...	...	{<i>hkl</i> }
— zone indices ...	...	[<i>hkl</i>]
indices of X-ray diffractions ...	...	<i>hkl</i>
intensity, ...	...	<i>I</i>
— relative ...	...	I/I_0
interplanar spacing ...	...	<i>d</i>
mica structural polymorphs ...	...	1M_1 , 2M_1
Siegbahn units ...	...	kX
space group. These words will be written in full		
unit cell, formula units ...	...	<i>Z</i>
— — repeat distances ...	...	<i>a</i> , <i>b</i> , <i>c</i>
— — reciprocal lattice lengths of edges ...	...	a^* , b^* , c^*
— — interaxial angles	...	
direct lattice ...	...	α , β , γ
— — — reciprocal lattice ...	...	α^* , β^* , γ^*

OPTICAL

dispersion, e.g. ...	...	$r > v$
extinction angle, e.g. ...	...	$\gamma : c$
infrared ...	...	IR
optic axial angle ...	...	2V
— — plane ...	...	O.A.P.
refractive index, in text ...	...	refr. ind.
— — of isotropic mineral ...	...	<i>n</i>
refractive indices		
of uniaxial mineral ...	...	ω , ϵ
of biaxial mineral ...	...	α , β , γ
sign of biaxiality		
negative ...	...	$2V_\alpha$ or —
positive ...	...	$2V_\gamma$ or +
ultraviolet ...	...	UV

PHYSICAL

calculated ...	...	calc.
calorie ...	...	cal.
calorie, large ...	...	kcal.
cycles per second ...	...	c/s
degree centigrade ...	...	$^{\circ}\text{C}$
density ...	...	<i>D</i> (quote units)
— , relative, e.g. ...	...	D_{40}^{20}
gramme ...	...	<i>g</i>
hardness ...	...	H.
melting-point ...	...	m.p.
micron (10^{-4} cm) ...	...	μ
millimicron (10^{-7} cm) ...	...	m μ
pounds per square inch ...	...	lb/in. ²
pressure ...	...	<i>P</i>
soluble ...	...	sol.
specific gravity, terms of reference not known ...	...	sp. gr.
temperature ...	...	<i>T</i>
Vickers hardness number ...	...	VHN
wavelength ...	...	λ

SYMBOLS

approximately equal to ...	...	\sim
equal to ...	...	$=$
equal to or greater than ...	...	\geq
equal to or less than ...	...	\leq
greater than ...	...	$>$
less than ...	...	$<$
not equal to ...	...	\neq
parallel to ...	...	\parallel
per cent. ...	...	%
per mille ...	...	‰
perpendicular to ...	...	\perp
proportional to ...	...	\propto

